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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
KAMPS, FRANCES H	

ART UNIT	PAPER NUMBER
3743	

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10/14/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/592,982	USTUN, ORHAN	
	Examiner	Art Unit	
	FRANCES KAMPS	3743	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *05 October 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *9 and 15-17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *9 and 15-17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *15 September 2006* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *09/26/07, 10/05/09*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the two spiral-shaped heat-conducting baffles (Claim 15) must be shown or the features canceled from the claim. No new matter should be entered.

2. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. **Claims 9, and 15 – 17 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Helmut et al (DE 198 59 658 A1) in view of Takeuchi et al (US 4,440,156) and Ghela (US 6,619,283).**

5. **In re Claim 9,** Helmut et al ('658) discloses a heat exchanger (figs 1, 2a; (1)) comprising:

- a vacuum tube (2) having an inner wall (as shown in fig 1);
- an inner tube (13) adapted to hold a fluid (page 2, last paragraph, "a heat distribution medium oil" or (page 3, first paragraph) "water"), wherein an outer wall of the inner tube (13) is arranged concentric (fig 2a) to the inner wall of the vacuum tube (2);
- at least one heat-conducting element (3) made of metal (page 2, seventh paragraph "consist ...of a blackened predominant cupreous material"), (thermally) connecting the inner wall of the vacuum tube (fig 2; (2)) to a fluid-conducting pipe system (13) (the system as shown in fig 7; (6, 7 and 13))(as best understood, the "fluid conducting pipe system (p 2, ln 27)" is a concentric counter-flow inner tubes, located at the center of a vacuum tube); and
- a means for collecting and concentrating solar energy (abstract)
- wherein the at least one heat-conducting element (3) is contacting the outer wall of the fluid-conducting pipe system (fig 2a: (13)) and prestressed (page 2, paragraph 5 "resilient") (against the inner wall of the vacuum tube (2) and the fluid-conducting pipe system, and in that each heat-conducting element extends in a spiral shape along a cross-section of the heat exchanger and covers an angle of at least 450 degrees (as is apparent in fig 2a).

6. Helmut et al ('658) lacks:

- wherein the means for collecting and concentrating solar energy is provided on a side of the inner wall of the vacuum tube facing away from the at least one heat-conducting element,
- wherein an outer wall of the fluid conducting pipe system is a metal wall, and
- wherein the heat-conducting element is attached at the outer wall of the fluid-conducting pipe system.

7. Takeuchi et al ('156) teaches a solar heat collector wherein:

- a means for collecting and concentrating solar energy (fig1, (3)) is provided on a side of the inner wall (2) of the vacuum tube facing away from the at least one heat-conducting element (4), and
- wherein an outer wall of the fluid conducting pipe system is a metal wall ((col 2, ln 27)

8. It would have been obvious to one having ordinary skill in the art at the time the invention was made to include a means for collecting and concentrating solar energy, on a side of the inner wall of the vacuum tube, and a metal walled fluid conducting pipe, as taught by Takeuchi et al ('156) in the system of Helmut et al ('658), in order to maximize the thermal output of a solar collector, for the purpose of increased efficiency.

9. Ghela ('283) teaches a solar collector wherein;

- wherein the heat-conducting element (72) is attached at the outer wall of the fluid-conducting pipe (71) system (col 11, lns 39 – 46).

10. It would have been obvious to one having ordinary skill in the art at the time the invention was made to attach a heat-conducting element to the outer wall of the fluid-conducting pipe as taught by Ghela ('283) in the system of Helmut et al ('658), in order to more readily transfer heat from the heat-conducting element to the internal fluid-conducting pipe for the purpose of increased efficiency.

11. **Claims 10 – 14** (Cancelled)

12. **In re Claim 15** Helmut et al ('658) has been discussed, wherein the heat exchanger has a *single* heat-conducting element (fig 2a; (3)) that extends in a spiral shape along a cross-section of the heat exchanger (1) and that covers an angle of at least 450 degrees.

13. Helmut et al ('658) teaches *three* heat-conducting elements (fig 2c; (3)), wherein *three* of the heat-conducting elements are spaced apart from one another in an angular arrangement on an outer wall of the fluid-conducting pipe system over an angular range that encompasses / covers the entire internal circumference of the inner wall of the vacuum tube.

14. It would have been obvious to one having ordinary skill in the art to use the teaching of Helmut et al ('658) modify the heat conducting elements such that *two* heat-conducting elements are utilized, spaced apart from one another in an angular arrangement on an outer wall of the fluid-conducting pipe system over an angular range between 350 to 359 degrees or between 90 and 179 degrees, to optimally cover the entire internal circumference of the inner wall of the vacuum tube to in order to maximize the thermal output of a solar collector, for the purpose of increased efficiency.

15. **In re Claim 16**, Helmut et al ('658) has been discussed, wherein the fluid-conducting pipe system (6, 7, 13) comprises an outer volume and an inner volume operable in a counter-current mode (fig 7).

16. **In re Claim 17** Helmut et al ('658) has been discussed, wherein the fluid is a heat-conducting fluid (page 2, last paragraph, "a heat distribution medium oil" or (page 3, first paragraph) "water"), and the fluid is contained within the inner tube (6).

Conclusion

17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Kenny (US 4,233,957) discloses an evacuated solar energy collector, utilizing a counterflow fluid heat exchange arrangement, with an absorber coating therein.
- Hunt (US 4,205, 655) discloses an evacuated solar collector, utilizing a counterflow fluid heat exchange arrangement, with an inner absorber member welded to an inner tubular clued counter flow pipe, coated with a selective coating to absorb and retain solar energy.
- Fehlner et al (US 4,067,315) discloses a solar heat pipe, wherein a spacer is a resiliently spirally wrapped wire that expands against an inner surface portion of the glass collector.

18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to FRANCES KAMPS whose telephone number is 571.270.5726. The examiner can normally be reached on M-F; 8-5.

19. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth Rinehart can be reached on 571.272.4881. The fax phone number for the organization where this application or proceeding is assigned is 571.273.8300.

20. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866.217.9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800.786.9199 (IN USA OR CANADA) or 571.272.1000.

/FRANCES KAMPS/
Examiner, Art Unit 3743

/Kenneth B Rinehart/

Supervisory Patent Examiner, Art Unit 3743